On the Holl-Effect of Ordering Alloys of Iron-Aluminum SOV/55-58-1-15/33

There are 7 figures and 16 references, 8 of which are Soviet, 4 American, 3 English, and 1 German.

ASSOCIATION: Kafedra magnetizma (Chair of Magnetism)

SUBMITTED: March 2, 1957

Card 2/2

AUTHOR: Cheremushkina, A.V. SOV/55-58-1-16/33

TITLE: On the Kinetics of Superstructural Changes in the Alloy Fe_3Al
(O kinetike sverkhstrukturnykh prevrashcheniy v splave Fe_3Al)

PERIODICAL: Vestnik Moskovskogo universiteta, Seriya fiziko-matematicheskikh i yestestvennykh nauk, 1958, Nr 1, pp 129-132 (USSR)

ABSTRACT: The author determines the relaxation time τ by the change of the Hall effect for the isothermic annealing of Fe_3Al (13.6% Al).

The results show a very good agreement with the values of τ calculated with the aid of the specific electric resistance. There are 4 figures and 6 references, 5 of which are Soviet, and 1 English.

ASSOCIATION: Kafedra magnetizma (Chair of Magnetism)

SUBMITTED: March 2, 1957

Card 1/1

24 (3)

AUTHORS: Akulov, N. S., Cheremushkina, A. V. SOV/56-35-2-36/60

TITLE: On the Hall Effect in the Curie Point (Ob effekte Kholla v tochke Kyuri)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 2 (8), pp 518-519 (USSR)

ABSTRACT: In the temperature interval which is noticeably higher than Curie (Kyuri) point magnetization is caused by a variation of the number of the parallel and of the antiparallel spins. In this case there is no short-range order. The authors use for this process the term "real magnetization" in order to distinguish it from the paraprocess which corresponds to the existence of a short-range order and to the formation of micro-domains. The paraprocess causes a magnetization by turning the microdomains. These two processes and also the processes of inversion (the sudden jump of the vector of spontaneous magnetization from one direction of easy magnetizability to another) and rotation (the egress of the vector of the spontaneous magnetization of the domain from the direction of the easy magnetizability) corresponds to its characteristic Hall (Kholl) parameter. The following

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results were obtained for the inversion: In the range of technical saturation, the Hall electromotive force in iron- aluminium alloys depends on the magnetization I in a non-linear manner. For alloys with a non-zero anisotropy constant there is an inflection in the region of the transition from the inversion to the rotation. A sharp difference between the Hall parameters of the paraprocess and of the real magnetization was observed. The ferromagnetic Hall parameter of the real magnetization is practically equal to zero. According to these results, the distribution of the spins does not imply a Hall effect if there is no short-range order (even if $I \neq 0$ provided that $H \neq 0$). By approximation to the Curie point a short-range order arises which may be characterized by the formation of microdomains (i. e., of electron complexes with parallel spins). The higher the number of these microdomains, the higher the value of the ferromagnetic Hall (Kholl) parameter R. The curve R(T) above the Curie point may be considered to be a characteristic of the probability of the generation of micro-domains at different temperatures. Below the Curie point the microdomains fuse and form larger complexes, i. e. domains. A formula is given for the

On the Hall Effect in the Curie Point

SOV/56-35-2-36/60

dependence of the Hall parameter on the temperature below the Curie point. This formula implies the existence of 2 effects one of which is proportional to the specific electric resistance ρ and the other - to ρ^2. Finally the authors demonstrate that some previous results of other authors are special cases of the results deduced in this paper. There are 2 figures and 6 references, 5 of which are Soviet.

ASSOCIATION: Moskovskiy geologorazvedochnyy institut (Moscow Geological Prospecting Institute)

SUBMITTED: April 18, 1958

Card 3/3

AUTHOR: Cheremushkina, A. V. SOV/126-6-2-10/34

TITLE: On the Influence of Decomposition of Super-Saturated Solid Solutions on the Hall Effect (O vliyanii raspada peresyshchennykh tverdykh rastvorov na effekt kholla)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6, Nr 2, pp 268-271 (USSR)

ABSTRACT: The aim of the author was to carry out a combined investigation of the physical properties during decomposition of the saturated solid solutions of the alloy iron-tungsten. Some of the properties of such alloys have been investigated before, however others, for instance the Hall effect, have not been investigated so far. On the basis of the comparison of changes of individual physical properties, a number of features were brought out which were not detected earlier. For investigating the Hall effect on dispersion-hardening of alloys, several compositions were prepared containing respectively 3.7, 5.5, 9.8, 13.9, 15.7 and 17.3 wt.%. The first two alloys were solid solutions, the remaining ones were heterogeneous solutions. For obtaining a homogeneous structure at room temperature, the alloys

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On the Influence of Decomposition of Super-Saturated Solid Solutions on the Hall Effect

containing over 7% were preliminarily annealed for 30 mins at 1000 to 1350°C, depending on their composition, and, following that, were hardened in water. In the hardened state the magnetisation, the coercive force, the Hall e.m.f. and the specific resistance were measured. It was found that, up to magnetisation fields corresponding to saturation, the Hall e.m.f. is a linear function of the magnetisation. The results are summarised as follows:

1. A branching was detected in the curves of the dependence of the ferromagnetic Hall constant for the hardened and the annealed states of the alloy in the case of a critical concentration, corresponding to the limit solubility of tungsten in iron.
2. The investigations of the specific resistance for the annealed state of the alloy confirmed the results of Stablein, F. (Ref.7) on the existence of a critical concentration, corresponding to the limit solubility of tungsten in iron, above which the electric resistance remains unchanged.
3. The curves of the change of the ferromagnetic Hall

On the Influence of Decomposition of Super-Saturated Solid Solutions on the Hall Effect

constant R and the specific electrical resistance ρ as a function of the concentration of the tungsten in the alloy indicate that the magnitudes R and ρ are inter-related by a functional dependence of the type $R = a\rho + b\rho^2$.

4. The kinetics of the change of R, ρ, I_s, H_c were investigated during tempering at 660°C and it was found that the ferromagnetic Hall constant is associated with the specific electric resistance determined during kinetic measurements by a relation of the same type as was obtained for its dependence on the tungsten content.

There are 6 figures and 7 references, 3 of which are Soviet, 3 English, 1 German.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova (Moscow State University imeni M.V.Lomonosov)

SUBMITTED: November 15, 1956

Card 3/3 1. Iron-tungsten alloys--Decomposition 2. Iron-tungsten alloys--Physical properties 3. Iron-tungsten alloys--Magnetic properties

24(3)

AUTHOR: Cheremushkina, A.V. SOV/139-59-1-25/34

TITLE: Temperature Dependence of the Hall Effect in Ordering Iron-Aluminium Alloys (Temperaturnaya zavisimost' effekta kholla v uporyadochivayushchikhsya zhelezo-alyuminiyevykh splavakh)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, 1959, Nr 1, pp 139-142 (USSR)

ABSTRACT: Studies of the Hall effect in ferromagnetics (Ref 1) showed that the Hall constant R is strongly temperature dependent. Karplus, Lattinger and Smit (Ref 2) showed theoretically that R is related to the electrical resistivity ρ. To obtain experimental data on this relationship the author measured the Hall constant R and the residual resistivity ρ of iron-aluminium alloys and determined the effect of ordering on the latter two quantities. Measurements were made in a wide range of temperatures (from -195 to +620 °C) on quenched and annealed samples whose composition was close to Fe_3Al. Ordering occurs in these alloys after long anneals at temperatures below 560°C. The samples tested contained 13.6, 14.8 and 16% of aluminium by weight. They were homogenized by heating at 900°C for 24 hours. Their

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Temperature Dependence of the Hall Effect in Ordering Iron-Aluminium Alloys

dimensions were 6 x 12 x 150 mm. The Hall e.m.f. was measured using the technique described by Kikoin (Ref 5); a potentiometer PPTN-1 and a galvanometer M-21/4 were employed. The current in the samples was held constant at 5 A. In measurements of the Hall e.m.f. at room temperature and at the temperature of liquid nitrogen the samples were placed in a Dewar vessel. In measurements at high temperatures the sample and the furnace were placed in vacuo (10^{-2} to 10^{-3} mm Hg). The current and e.m.f. terminals were silver-soldered to the sample. The sample temperature was measured by means of a thermocouple. The samples were magnetized in a water-cooled solenoid producing a field of up to 1600 oersted. Magnetization was measured ballistically. The effect of temperature on the Hall e.m.f. E was studied on samples subjected to quenching from 700°C and on samples annealed at 300°C for 24 hours. In quenched samples the e.m.f. E was measured at temperatures from -195 to +250°C. In annealed samples the e.m.f. was measured at temperatures from -195 to +300 °C. At each temperature the Hall

Temperature Dependence of the Hall Effect in Ordering Iron-Aluminium Alloys

e.m.f. E and magnetization were measured at various applied magnetic fields from 0 to 1600 oersted. The temperature dependences of the Hall e.m.f. E of quenched and annealed samples are shown in Figs 1 (13.6% Al alloy), 2 (14.8% Al), and 3 (16% Al). Figs 1-3 also show magnetization I_S as a function of temperature. Fig 4 shows the dependence of E on the applied magnetic field intensity for the 13.6% Al alloy. The figures show that the Hall e.m.f. depends strongly on temperature in annealed samples and is only slightly dependent on temperature in quenched samples. At higher temperatures (300 to 600 °C), the Hall e.m.f. decreases with increase of temperature, due to decrease of spontaneous magnetization I_S at these temperatures. The Hall e.m.f. and magnetization of the 16% Al alloy change continuously with temperature (Fig 3). The Hall e.m.f. and magnetization curves of the 13.6% and 14.8% Al alloys exhibit a small step between 500 and 600 °C. According to Sykes and Evans (Ref 4) iron-aluminium alloys with about 14% Al have two magnetic transition points, corresponding to the

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ordered and disordered phases. The presence of two Curie points in the Fe_3Al alloy was also discovered in the studies of the temperature dependence of the magneto-caloric effect (Ref 6). The simultaneous appearance of steps in the curves of I_s and E show that the behaviour of the Hall e.m.f. in the region of 300 to 600 °C is due to changes in spotaneous magnetization. At low temperatures, between -195 and +300°C, the Hall e.m.f. increases with temperature. Spontaneous magnetization in this region is practically constant and consequently the relationship between E and electrical resistivity ρ becomes clearer. It was found that the value of ρ is strongly temperature-dependent in annealed samples, and is only slightly affected by temperature in quenched samples, i.e. the electrical resistivity behaves in the same way as the Hall e.m.f. Fig 3 shows the plot of $(R - R_0) / (\rho - \rho_0)$ against $(\rho - \rho_0)$ for the 13.6 and 16% Al alloys at temperatures from -195 to +300 °C.

Card 4/5 Here R is the Hall constant, and R_0 and ρ_0 are the values of the Hall constant and electrical resistivity at

Temperature Dependence of the Hall Effect in Ordering Iron-Aluminium Alloys

the temperature of liquid nitrogen. The experimental points of Fig 5 lie on straight lines, confirming that the quantities $(R - R_\rho)$ and $(\rho - \rho_0)$ are related by a linear-quadratic expression reported by Akulov and the author (Ref 7). The observed increase of E and R with temperature, in the region of low temperatures, confirms qualitatively the theory of Karplus, Lüttinger and Smit (Ref 2). Acknowledgement is made to Professor Ye.I. Kondorskiy for his advice.

There are 5 figures and 7 references, of which 4 are Soviet, 1 English and 2 mixed (English-Soviet, English-Dutch).

Card 5/5

ASSOCIATION: Moskovskiy Ordena Lenina Gosuniversitet imeni M.V. Lomonosova (Moscow Lenin Order State University imeni M.V. Lomonosov)

SUBMITTED: June 30, 1958

24.2136

65708
SOV/139-59-2-7/30

AUTHORS: Chernikova, L.A. and Chermushkina, A.V.

TITLE: The Electrical Resistance of the Alloy Fe_3Al and its change in a Magnetic Field

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1959, Nr 2, pp 43-47 (USSR)

ABSTRACT: The aim of the present work was to study the effect of structural changes in the above alloy on the electrical resistance and the longitudinal galvanomagnetic effect. The latter effect was studied using a specimen of the alloy containing 14% of Al by weight. The specimen was in the form of a thin plate, 0.21 x 3.2 x 170 mm in size. It was heated to 900°C in a vacuum for 24 hours. The initial unordered state was achieved by quenching the specimen in water after heating at 800°C for 1 hour. In order to obtain states of different order, the specimen was heated to temperatures in the interval 250 to 700°C for various lengths of time. The electrical resistance was then measured by a potentiometric method. The change in the electrical resistance in a longitudinal magnetic field was measured by the ratio $\Delta R_T/R_T$ where ΔR_T is the change in the absolute magnitude of the electrical

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The Electrical Resistance of the Alloy Fe_3Al and its Change in a Magnetic Field

resistance in the magnetic field at a temperature T, and R_T is the resistance at this temperature. Measurements of this ratio at room temperature, using a specimen cooled down from 800°C and annealed at 300°C for various lengths of time, are shown in Fig 1. Analogous curves were obtained for other annealing temperatures. Fig 2 shows the dependence of this ratio on the magnetic field for a specimen cooled down from 800°C and then annealed at 300, 360 and 400°C for 24, 10 and 5 hours respectively. Fig 3 shows the dependence of the above ratio on the magnetic field at temperatures of 4.2, 78 and 287°K for a specimen cooled down from 800°C in water and a specimen cooled down from the same temperature at a controlled rate of 25° per hour. The latter case is indicated by crosses and the former by open circles. As shown, the magnetic field was in the range 0 - 3000 oersted. It was established that the quantity $\Delta R_T/R_T$ is negative in the above field interval and its absolute magnitude increases as the temperature decreases. It is shown further that as the degree of order increases, the

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ratios $\Delta R_T/R_T$ and $\Delta R_s/R_T$ increase in their absolute magnitude and d/dH $(\Delta R_T/R_T)$ also increases. The quantity $\Delta R_s/R_T$ is the relative change in the resistance on magnetization up to saturation. The electrical resistance of this alloy does not decrease below helium temperatures. It is found that the galvanomagnetic effect is more sensitive to structural changes than the electrical resistance. Fig 6 shows a plot of log τ against $1/T$, where τ is the relaxation time and T is the annealing temperature in °K. The activation energy calculated from experimental data shown in Fig 6 was found to be 30 kcal/mole. Ye.I.Kondorskiy is thanked for discussing results reported in this paper. There are 6 figures and 4 Soviet references.

ASSOCIATION: Moskovskiy gosuniversitet imeni M.V.Lomonosova
(Moscow State University imeni M.V.Lomonosov)

SUBMITTED: July 7, 1958

Card 3/3

KURBANNIYAZOV, N.; CHEREMUSHKINA, A.V.

Hall effect and the electric resistance of Fe - Al alloys. Izv. AN Turk. SSR. Ser. fiz.-tekh., khim. i geol. nauk no.4:113-115 '63. (MIRA 17:2)

1. Turkmenskiy gosudarstvennyy universitet imeni Gor'kogo.

45340

S/181/63/005/002/010/051
B104/B186

24,7600

AUTHORS: Cheremushkina, A. V., and Koroleva, M. I.

TITLE: Hall effect and electrical resistance in iron-vanadium alloys

PERIODICAL: Fizika tverdogo tela, v. 5, no. 2, 1963, 455 - 457

TEXT: The relationships of the Hall effect and the electrical resistance to the composition of Fe-V alloys containing 1.02 - 25.5% V by weight were determined experimentally in the -195 to +18°C temperature range, and the results compared with theoretical predictions (J. Luttinger, Phys. Rev., 112, 195, 1958; R. Karplus, J. Luttinger, Phys. Rev., 95, 1154, 1954). The test pieces were thin plates measuring 8·3·0.4 mm; the current flowing through them was kept constant at 0.4 a. The magnetizability was measured in fields having strengths of up to 2500 oe. The test pieces were annealed for ten hours at 800°C and cooled in the furnace before testing. The measurements showed that the relationship obtained by Luttinger, $R = a\varrho + b\varrho^2$, not only holds when the metal contains no impurities, but also when the variation in the residual resistance is sufficiently large. There are 3 figures.

Card 1/2

Moscow State Univ.

KONDORSKIY, Ye.I.; CHEREMUSHKINA, A.V.; KURBANIYAZOV, N.

Hall effect in ferromagnetic metals and alloys. Fiz. tver. tela 6 no. 2:539-548 F '64. (MIRA 17:2)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

L 594[illegible]-65 EWP(z)/EWT(1)/EWT(m)/EWP(b)/EWP(t) Pad IJP(c) JD/HW

ACCESSION NR: AP5011800 UR/0202/65/000/002/0126/0129

AUTHORS: Kurbanniyazov, N.; Cheremushkina, A. V.

TITLE: Hall effect and thermoelectric power in iron-nickel alloys

SOURCE: AN TurkmSSR. Izvestiya. Seriya fiziko-takhnicheskikh, khimicheskikh i geologicheskikh nauk, no. 2, 1965, 126-129

TOPIC TAGS: Hall effect, thermoelectric power, temperature dependence, field dependence, iron nickel alloy

ABSTRACT: The authors investigated the Hall effect in iron-nickel alloys in strong fields for the purpose of determining the Hall constant and obtaining experimental data on the mechanism of conductivity in these alloys. Measurements are also made of the integral thermoelectric power of the investigated alloys. The alloys contained nickel in varying amounts from 45 to 100 per cent by weight. The Hall emf was measured by a method proposed by N. V. Vol'kenshteyn and A. G. Turchinskaya (PTE no. 4, 150, 1959). The magnetic field reached 24,000 Oe. The Hall emf was measured with a potentiometer

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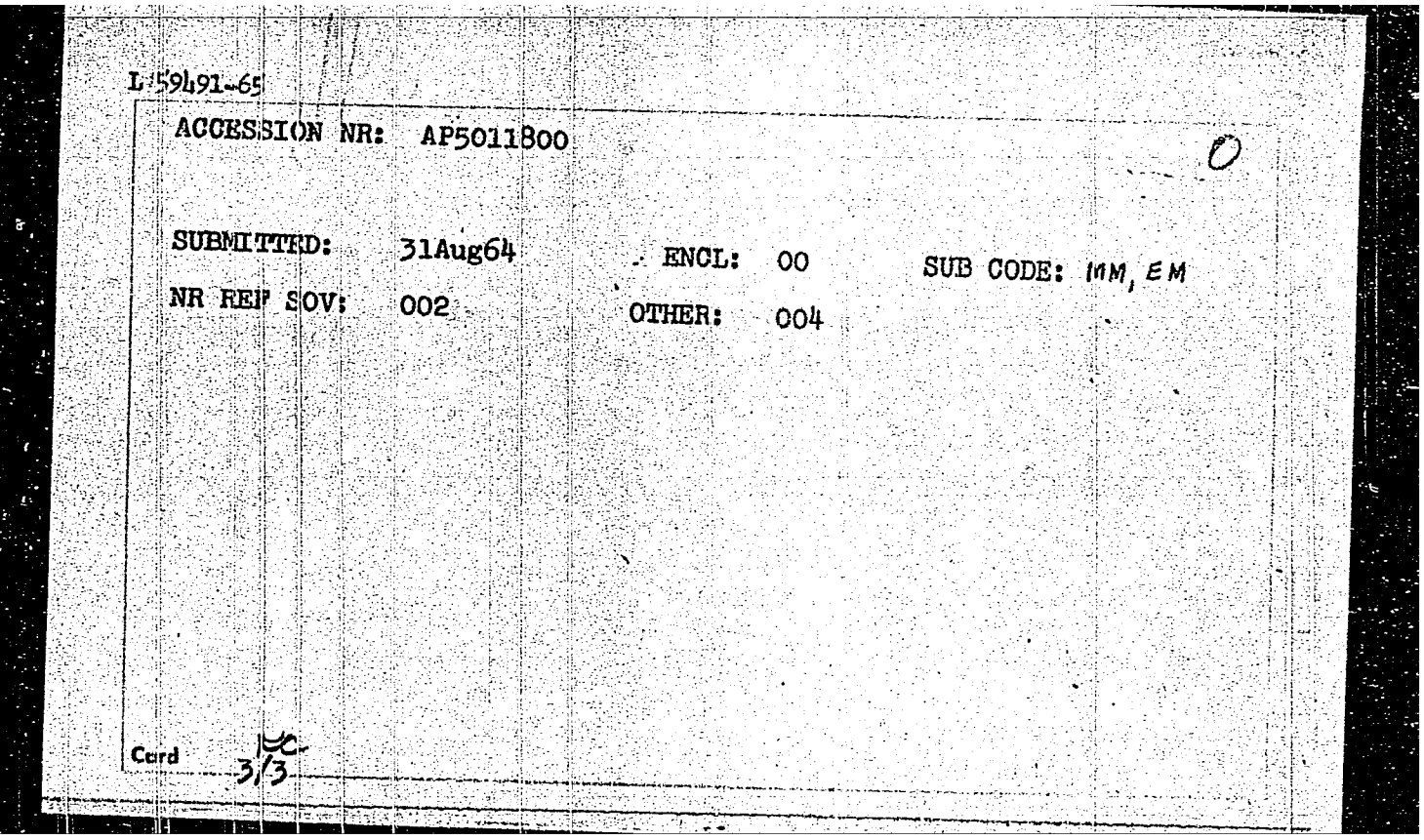
ACCESSION NR: AP5011800

and a photomultiplier. The measurements were made at two temperatures, -195 C and +18 C. The integral thermoelectric power was measured in samples in the form of wires made of the same alloys and the thermoelectric power was measured relative to platinum. Plots of the measured quantities against the magnetic field and against the temperature are presented. The measurements show that the type of the majority carriers in iron-nickel alloys remains constant over a wide range of nickel concentration, from 45 to 100 per cent by weight The Hall emf decreases with increasing induction and with increasing nickel content. The thermomagnetic Hall constant depends strongly on the temperature, while the field Hall constant is practically independent of the temperature. The results are in agreement with those obtained by others. Original article has: 4 figures and 1 formula

ASSOCIATION: Fiziko-tekhnicheskiy institut AN Turkmenskoy SSR (Physicotechnical Institute, AN Turkmenian SSR)

Card 2/3



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ACCESSION NR: AP5011800

SUBMITTED: 31Aug64 ENCL: 00 SUB CODE: MM, EM

NR REF SOV: 002 OTHER: 004

Card 1/2 3/3

KONDORSKIY, Ye. I.; CHEREMUSHKINA, A. V.; VASIL'YEVA, R. P.

"Degree of localization of magnetic electrons and the Hall and Nernst-Ettingshausen effects in ferromagnetic metals.

report submitted for Intl Conf on Magnetism, Nottingham, UK, 6-13 Sep 64.

State Univ of Moscow.

ACC NR: AP6021949 (A) SOURCE CODE: UR/0188/66/000/002/0093/0096

AUTHOR: Cheremushkina, A. V.; Arkhipov, Yu. N.

ORG: Department of Magnetism (Kafedra magnetizma)

TITLE: Temperature dependence of the Hall effect and of the electric resistance in Fe-Si-Al alloys of the 'Sendast' type

SOURCE: Moscow. Universitet. Vestnik. Seriya III. Fizika, astronomiya, no. 2, 1966, 93-96

TOPIC TAGS: Hall effect, resistivity, temperature dependence, iron nickel alloy, permalloy, magnetic anisotropy, magnetostriction

ABSTRACT: This is a continuation of earlier work (FTT v. 6, 539, 1964) where it was shown that in iron-nickel alloys the small bodies of the ferromagnetic Hall constant and small values of the magnetic anisotropic constant have approximately similar compositions (approximately 80% nickel). The present research was carried out on Fe-Si-Al alloys similar in their behavior to permalloy in that they have small magnetic anisotropy and magnetostriction. The preparation of the samples is described. The Hall emf was measured by a procedure given in an earlier paper (Vestn. Mosk. un-ta., ser. fiz., astron., no. 2, 7, 1957: no. 1, 7, 1958). The resistivity was measured with a potentiometer in the same samples. Measurements at high temperatures were made

Card 1/2 UDC: 621.318.1:538.632

ACC NR: AP6021949

in a vacuum of 10^{-2} -- 10^{-3} mm Hg. The results show that in the temperature range 20 -- 500C, the ferromagnetic Hall constant R_s and the electric resistivity ρ are connected by the relation $R_s = a\rho + b\rho^2$, the parameters a and b being functions of the alloy composition. Both parameters are found to be dependent on the relative concentrations of the components, a being larger for alloys with larger electric resistivity and being one order of magnitude smaller than for Fe and Fe-Si and Fe-Al alloys. In some of the alloys, b was close to zero, just as in permalloy. The results agree with the theory proposed for this phenomenon by Ye. I. Kondorskiy (ZhETF no. 6, 2085, 1964). The authors thank Professor Ye. I. Kondorskiy for suggesting the topic and discussing the results. Orig. art. has: 4 figures, 3 formulas, and 2 tables.

SUB CODE:11,20/ SUBM DATE: 20Nov64/ ORIG REF: 006/ OTH REF: 002

Card 2/2

BORODINA, N.A.; PLOTNIKOVA-VARTAZAROVA, L.S.; PETROVA, I.P.; CHEREMUSHKINA, E.I.; SHCHERBATSEVICH, V.D.

Special aspects of the wintering of plants in the arboretum of the Main Botanica Gardem in 1960-1961. Biul. Glav. bot. sada no.51:12-23 '63. (MIRA 17:2)

1. Glavnyy botanicheskiy sad AN SSSR.

VOINOV, S.I.; CHEREMUSHKINA, I.S.

Modern methods of controlling foot-and-mouth desease in the German Democratic Republic. Veterinariia 41 no.5:108-109 My '64. (MIRA 18:3)

CHEREMUSHKINA, L.I.

Insulin therapy of serum sickness. Sovet. med. 16 no.3:37-38 Mar 1952. (CLML 22:1)

1. Odessa.

DOBROKHOTOVA, A.I., prof.; GOL'DFEL'D, A.Ya., red.; CHERNUSHKINA, N.A., red.; GABERLAND, M.I., tekhn. red.

[Whooping cough and its control] Koklyush i bor'ba s nim. Moskva, Medgiz, 1956. 7 p. (MIRA 11:8)

1. Chlen-korrespondent Akademii meditsinskikh nauk SSSR.
(WHOOPING COUGH)

SAVVATIMSKAYA, Nadezhda Petrovna, GOL'DFEL'D, A.Ya., red.; CHEREMUSHKINA, N.A. red.; GABERLAND, M.I., tekhn.red.

[What one should know about rheumatic fever in children] Chto nado znat' o revmatizme u detei. Izd. 2. Moskva, Gos. izd-vo med. lit-ry. 1958. 15 p. (MIRA 11:8)
(Rheumatic fever)

SOKOLOVA-PONOMAREVA, Ol'ga Dmitriyevna, professor; GOL'DFEL'D, A.Ya., redaktor; [redacted], redaktor; GABERLAND, M.I., tekhnicheskiy redaktor

[How to protect children from contagious diseases] Kak uberech' detei ot zaraznykh bolezney. Izd. 2-oe, dop. Moskva, gos. izd-vo med. lit-ry, 1956. 19 p. (MLRA 10:1)

1. Chlen-korrespondent Akademii meditsinskikh nauk SSSR (for Sokolova-Ponomareva)
(COMMUNICABLE DISEASES--PREVENTION)
(CHILDREN--DISEASES AND HYGIENE)

MASLINKOVSKIY, Tovriy Isaakovich; GOL'DFEL'D, A.Ya., redaktor; CHEREMUSHKINA, N.A., redaktor; GOBERLAND, M.I., tekhnicheskiy redaktor

[How to protect children from accidents] Kak uberech' detei ot neschastnykh sluchaev. Moskva, Gos. izd-vo med. lit-ry, 1956. 23 p. (MLRA 9:10)

(CHILDREN--CARE AND HYGIENE)
(FIRST AID IN ILLNESS AND INJURY)

CHERNYSHKINA, N.A., redaktor; GLUKHOYEDOVA, G.A., tekhnicheskiy redaktor

[Correspondence course of instructions for mothers; 12 lectures] Zaochnyi kurs obucheniia materei; 12 lektsii. Moskva, Gos. izd-vo med. lit-ry, 1956. 248 p. (MLRA 9:12)
(CHILDREN--CARE AND HYGIENE)

CHEREMUSHKINA, N.A.

NAZAROVA, Nina Stepanovna, kandidat meditsinskikh nauk; CHEREMUSHKINA, N.A., redaktor; SHUCHILO, N.K, tekhnicheskiy redaktor.

[Children's clothing and equipment for day nurseries and children's homes] Detskaia odezhda i oborudovanie dlia iaslei i domov rebenka. Moskva, Gos.izd-vo med.lit-ry, 1957. 149 p. (MLRA 10:6)

(Clothing and dress) (Day nurseries--Equipment and supplies)

ROZENTAL', Anna Sergeyevna; CHERKMUSHKINA, N.A., red.; BUL'DYAYEV, N.A., tekhn.red.

[How to prevent nutrition disorders (emaciation) in children] Kak predupredit' rasstroistvo pitaniia (istoshchenie) u detei. Moskva, Gos.izd-vo med.lit-ry Medgiz, 1957. 20 p. (MIRA 12:9)
(CHILDREN--NUTRITION)

CHEREMYSHKINA, N.A.

BELOSTOTSKAYA, Yelena Maksimovna; BELOSTOTSKIY, Yevgeniy Maksimovich; CHEREMYSHKINA, N.A., red.; BUL'DYAYEV, N.A., tekhn. red.

[Protect children's eyesight] Beregite zrenie detei. Moskva, Gos. izd-vo med. lit-ry, 1958. 37 p. (MIRA 11:7)
(EYE-CARE AND HYGIENE)

ACC NR: AP7000262 (A) SOURCE CODE: UR/0073/66/032/011/1239/1242

AUTHOR: Grodshteyn, A. Ye.; Kriger, E. M.; Nazarova, E. A.; Choromnykh, V. V.; Seraya, L. Ya.

ORG: Donets Branch, All-Union Scientific Research Institute of Chemical Reagents and High-Purity Chemicals (Donetskiy filial, Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh reaktivov i osobo chistykh khimicheskikh veshchestv)

TITLE: Study of ferrite powders obtained by thermal treatment of salt mixtures

SOURCE: Ukrainskiy khimicheskiy zhurnal, v. 32, no. 11, 1966, 1239-1242

TOPIC TAGS: ferrite, chemical precipitation

ABSTRACT: Powders of magnesium manganese aluminate ferrites $Mg_{1.04}Mn_{0.14}Al_{0.39}Fe_{1.48}O_4$ were obtained by coprecipitation of carbonates, and powders of manganese-magnesium-zinc ferrites $Mg_{0.43}Mn_{0.68}Zn_{0.3}Fe_{1.73}O_4$ were obtained by decomposing a mixture of oxalates, nitrates and sulfates. The aluminate ferrites were fired for 12 hr at 1300-1320°C, and the Mg-Mn-Zn ferrites, for 5 hr at 1370°C. The large specific surface of powders at lower firing temperatures is attributed to the high porosity of the powder particles, not to their small size. As the firing temperature is raised, the internal porosity of the particles decreases, causing a decrease in the surface of the powder. As the temperature rises further, the particles sinter and increase in size. Dense, high-quality ferrites for SHF

Card 1/2 UDC: 621.318.136.029.64

ACC NR: AP7000262

applications are obtained when each powder is fired in the optimum temperature range for each salt mixture. Authors are grateful to V. A. Fabrikov for measuring the ferromagnetic resonance bandwidth of Mg-Mn-Zn ferrites. Orig. art. has: 2 tables.

SUB CODE: 07/ SUBM DATE: 30Aug64/ ORIG REF: 006/ OTH REF: 001

Card 2/2

KULAKOV, D.V.; OCHKIN, F.V.; KARPOVA, V.V.; SIMAKINA, N.V.; YAGUDIN, Z.Kh.; GREBENSHCHIKOVA, N.F.; CHEREMUSHKINA, V.M.; YELISEYEV, I.A.; CHERVYAKOVA, A.P.; BEREZOV, A.A.; FEDOTOVA, A.I.; SILKINA, I.V.; NOVIKOVA, V.P.; TANOVA, V.P.; NESVETAYEVA, G.M.; ADSKAYA, V.M.; DRYUCHIN, A.P., otv. red.; KONDRASHOVA, V.I., tekhn. red.

[Economy of Saratov Province in 1960; collected statistics]Narodnoe khoziaistvo Saratovskoi oblasti v 1960 godu; statisticheskii sbornik. Saratov, Gos.stat.izd-vo,1962. 325 p. (MIRA 15:9)

1. Saratov(Province)Statisticheskoye upravleniye. 2. Nachal'nik Statisticheskogo upravleniya Saratovskoy oblasti (for Dryuchin). (Saratov Province--Statistics)

137-58-4-7638

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 182 (USSR)

AUTHOR: Cherendina, P. D.

TITLE: An Investigation Into the Development of Process Techniques for Heat Treatment of Certain Nonferrous Alloys. (Issledovaniya v oblasti usovershenstvovaniya tekhnologicheskogo protsessa termicheskoy obrabotki nekotorykh tsvetnykh splavov)

PERIODICAL: V sb.: Materialy nauchno-tekhn. konferentsii rabotnikov zavodsk. laboratorii. Rostov-na-Donu, 1957, pp 55-59

ABSTRACT: An investigation of the possibility of reducing heat-treatment time for parts cast of AL4 alloy determined that when the length of hardening heat time at 535°C is cut from 6 hours to 0.5 hour and that of artificial aging at 175° from 15 to 8 hours, no impairment of mechanical properties and corrosion resistance occurs. Curves for change in mechanical properties under full and abbreviated heat-treatment cycles are adduced. The results of test-stand testing indicates that a number of parts for the "Belarus'" tractor may be made of 30KhGT steel instead of 18KhGT and 20KhN3A, thus affording a considerable saving. M. Z.

Card 1/1

1. Alloys--Heat treatment 2. Metals--Nonferrous--Heat treatment

1. CHERENICHENKO, YU. I.

2. USSR (600)

4. Automobiles - Transmission Devices

7. Calculation of fuel economy of an automobile with hydrodynamic transmission in established processes of motion. Avt. traki. prom. no. 12, 1952.

9. Monthly List of Russian Accessions, Library of Congress, May 1953. Unclassified.

CHERENIN, V. P.

Defended his Candidates dissertation in the Mechanics and Mathematics Faculty of Moscow State University on 3 July 1952.

Dissertation: "Several Questions on the Synthesis of Regular Geared Mechanisms."

SO: Vestnik Moskovskogo Universiteta, Seriya Fiziko-Matematicheskikh i Yestestvennykh Nauk, No. 1, Moscow, Feb 1953, pp 151-157: transl. in W-29782, 12 April 54, [redacted]

CHERENIN V. P.

Čerenin, V. P. Symbolic representation and the synthesis of regular toothed mechanisms consisting only of members with fixed axes of rotation. Izvestiya Akad. Nauk SSSR. Otd. Tehn. Nauk 1954, no. 3, 24–38 (1954). (Russian)

Several toothed circular gears are mounted on a fixed shaft and are meshed with another set mounted on another fixed shaft. Various transmission ratios are obtained by the various methods of connecting, through clutches, the gear pairs into a gear train. The systematic method of obtaining all the possible connections, and therefore all the possible transmission ratios, involves a study of all the connections similar to the possible graphs and trees. Tabulated schemes up to seven clutches are presented. An illustrated example using four gear pairs and five clutches gives six ratios; 26 arrangements give a set of ratios of the type a, b, c, pa, pb, pc, while 24 arrangements give a set of the type $1, a, b, p, pa, pb$.

M. Goldberg (Washington, D. C.).

CHERENIN, V.P.

Call Nr: Z695.92.R3

AUTHORS: Rakov, B.M., Cherenin, V.P.

TITLE: Experimental Machine For Information Retrieval of the Institute of Scientific Information, the Academy of Sciences, USSR (Eksperimental'naya informatsionnaya mashina Instituta nauchnoy informatsii AN SSSR).

PUB.DATA: Institut nauchnoy informatsii, AN SSSR, Moscow, 1955, 41 pp., 2,000 copies.

ORIG.AGENCY: AN SSSR. Institut nauchnoy informatsii.

EDITOR: None given.

Card 1/3

Call Nr: Z695.92.R3

Experimental Machine for Information (Cont.)

PURPOSE: To describe the experimental information retriever computer of the Institute of Scientific Information, Academy of Sciences, USSR.

COVERAGE: The EIM (Eksperimental'naya informatsionnaya mashina) experimental information retriever is an improved and modified version of the Model C80-1 sorting-computing machine. The modifications consist of changes in the memory system and in the data-sensing system, and also in the addition of an electronic circuit to permit an automatic retrieval of the desired information. Despite the simplicity, the machine is said to be capable of storing almost any language data and code, and is flexible enought to perform a variety of stored data searches. There are no personalities mentioned. The footnotes contain 2 USSR and 3 English references.

Card 2/3

Experimental Machine for Information (Cont.)

TABLE OF CONTENTS

AVAILABLE: Library of Congress

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CHERENIN, V.P.

[Some problems in documentation of the use of machines in finding information] Nekotorye problemy dokumentatsii i mekhanizatsiia informatsionnykh poiskov. Moskva, Institut nauchnoi informatsii AN SSSR, 1955. 74 p. (MLRA 8:12)
(Punched card systems)

Translation 7 pp. 3-37 and 74-76 -

Translation No. 576, 20 Jul 56

CHERENIN, V. P., RAKOV, B. M.,

Byulleten' YUNESKO dlya bibliotek; Machines for Retrieving Information in the USSR. UNESCO Library Bulletin, 11 [8-9] 1957. Also published in English, French, and Spanish; and in German in Nachrichten fur Dokumentation 9 [1], 1958.

CHERENIN, V. P.,

"The Basic Types of Information Tasks and Some Methods of Their Solution," Area 5, pp. 9-39.

All-Union Institute of Scientific and Technical Information, Academy of Sciences of the USSR, Moscow. /Russian references from "Preprints of Papers for the International Conference on Scientific Information", Washington, D. C. November 1958. Available: NAS-NRC Library./

CHERENIN, V. P.

AUTHOR: Cherenin, V. P. (Moscow). 24-1-5/26

TITLE: Symbolic representation of planetary and differential mechanisms. (Simbolicheskiye izobrazheniya planetarnykh i differentsial'nykh mekhanizmov).

PERIODICAL: Izvestiya Akademii Nauk, Otdeleniye Tekhnicheskikh Nauk, 1958, No.1, pp. 35-43 (USSR).

ABSTRACT: Continuing the general analysis of the selection of planetary and differential gear mechanisms as originated by Kreynes, M.A. ("Synthesis of Regular Gear Mechanisms", Dissertation, Moscow State University, 1943) and developed in further papers by Kreynes and the present author (starting with his dissertation, submitted in 1952 to the Moscow State University) the system of symbolic presentation is extended to gear mechanisms with moving axes. The purpose of the symbolic representation is the solution of problems in synthesis in a manner similar to the synthesis of framework structures and the solution of problems of analysis such as finding the gear ratios and efficiencies of complex gear mechanisms. The reasoning of the present paper and its symbolism cannot be followed without study of the earlier references.

Card 1/1 There are 1 figure and 6 references, all of which are Russian.

SUBMITTED: April 19, 1957.

AVAILABLE: Library of Congress.

CHERENIN, V. P., LAVRENT'YEVA, G. A., and ZHIDKOVA, N. V.
Institute of Scientific Information, USSR Academy of Sciences, Moscow - "Experimental Information Language for Mechanization of Searching of Scientific and Technical Literature."

Report to be submitted for the Intl. Conference on Machine Searching and Translation, (for Standards on a Common Language), Cleveland, Ohio, 6-12 September 1959.

SOURCE: Documentary: Newsletter, Issue No. 2, issued by the Center for Documentation and Communication Research, School of Library Science, Western Reserve University, Cleveland 6, Ohio.

. CHERENIN, V.P.

9(5) SOV/30-59-6-15/40

AUTHOR: Mikhaylov, A. I., Doctor of Technical Sciences

TITLE: International Conference on Scientific Information (Mezhdunarodnaya konferentsiya po nauchnoy informatsii)

PERIODICAL: Vestnik Akademii nauk SSSR, 1959, Nr 6, pp 103-106 (USSR)

ABSTRACT: In November 1959 (Abstracter's note: obviously a printing error) this Conference which had been organized by scientific institutions of the USA took place in Washington. It was attended by more than 900 delegates among them more than 100 from 23 foreign countries. The Conference discussed 75 reports on problems of scientific and technical information. 2 lectures were delivered by Soviet experts. A. I. Mikhaylov reported "On the Activity of the All-Union Institute for Scientific Information" and V. P. Cherenin on "Important Tasks of Information and Some Methods for Their Solution". At the request of the organizers of the Conference the author of this article reported on the working experience of the VINITI gained in the course of 6 years and the beginning of the publication of a monographic series "Itogi nauki" on the basis of the "Referativnyy zhurnal". Beginning with 1959 the VINITI plans

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the publication of a special periodical bulletin on the information activity in the Soviet Union as well as abroad. The Conference recommended English and Russian and, in ten years, Chinese as international languages of science and engineering. About 50% of the reports presented dealt with the development of theoretical and practical problems of mechanization of information. At the conference an exhibition of modern electromechanical, photographical and electronic apparatus was shown. The photoelectronic system "Minicard" of the firm "Rekodak", a subsidiary company of "Eastman Kodak" met with the special interest of the Soviet delegates. The establishment of an international center for scientific and technical information was refused because it cannot practically be carried out under the conditions of the cold war. In conclusion, the Conference is commented as factual and useful.

OLEYNIK, Yuriy Aleksandrovich; CHERENIN, V.P., otv.red.; YAKOVKIN, M.V., red.; POPOVA, N.S., tekhn.red.

[Solution of transportation problems on an electronic computer by approximation with relatively optimum plans] Reshenie zadachi o transportirovke na elektronnoi vychislitel'noi mashine metodom priblizheniia uslovno-optimal'nymi planami. Moskva, Vychislitel'nyi tsentr AN SSSR, 1960. 32 p. (MIRA 13:12)
(Electronic calculating machines) (Transportation)

37024
S/044/62/000/003/092/092
C111/C333

6.9500

AUTHORS: Cherenin, V.P., Lavrent'yeva, G.A. ~~Zhidkova, N.V.~~

TITLE: Experimental information language for the mechanized search of the scientific-technical literature

PERIODICAL: Referativnyy zhurnal., Matematika, no. 3, 1962, 79, abstract 3 V 494. ("Vychisl. matematika", sb. 6, 1960, 118 - 160)

TEXT: It is pointed to the boundedness of the traditional methods for searching the scientific-technical literature, and the pecularities of the new searching methods are analyzed which are constructed without considering the synthetic relations between the characteristics of the object columns (methods of Ranganatan, Moors, Taub) as well as with consideration of the complicated and essential synthetic relations (methods of Perry, Andrew and Newman, Ferradeyn). The foundation of most of these methods is the idea not to operate with the object columns, but with their representations by sets of more general sense units - characteristics synthetically connected with each other.

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The determination of the similarity and subordination relations between the columns leads to the determination of the same relations between the characteristics from different sets which correspond to the columns, as well as to the comparison of the synthetic relations between the characteristics within the sets. A similar representation is also possible for the obtained characteristics; this leads to characteristics of the second stage, third stage etc, until the characteristics of the considered step are already general such that for the determination of the analytic relations between them a simple standardization, simple cross references or the traditional classification system are sufficient. The application of this idea opens the possibility of determining the relations with the aid of a machine which carries out the simplest logical operations on the standard characteristics; this requires the formation of an "information language" and of a variation of it, the "machine language". The authors propose a method for indexing the "objects" which is more unique than the method of Perry, and for which there exists no danger of mixing the characteristics of different steps (i.e. of mixing analytic with synthetic relations). Demands on an

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Experimental information language ... S/044/62/000/003/092/092
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experimental informative searching machine are described; the basis of these demands is the guarantee of a suitable comparison of the questions and columns and a sufficient flexibility for the transition from one experimental code to another under a maximally simple construction.

The authors describe the structure and functions of the experimental information machine constructed in 1954 and completed lateron by an annex which renders possible the comparison of the codes under consideration of the essential synthetic relations (of the type of single grouping). The method for the coding of the object columns and of the characteristics of the question is described. The machine is tentatively used since 1958 for the experimental search of literature on the domain of mechanics. The results of the first experiments are most promising; a complete estimation of the elaborated searching system, however, will require much experimental work, where by the processes in single stages must be improved, the uniqueness and the automatization of the second indexing must be increased, the strategy of searching must be developed, the structure of the representations of the objects and of the terms must be varied.

[Abstracter's note : Complete translation.]

Card 3/3

CHERENIN, V.P., kand.fiziko-matematicheskikh nauk

Using electronic calculating machines for preparing an optimum make-up plan for classified trains. Vest. TSNII MPS 20 no.1: 21-24 '61. (MIRA 14:1)

1. Vychislitel'nyy tsentr Akademii nauk SSSR.
(Railroads—Making up trains)
(Railroads—Electronic equipment)

CHERENIN, V. P.

"Compilation of the Plan of Making Up Trains With the Aid of a Computer"

presented at the All-Union Conference on Computational Mathematics and Computational Techniques, Moscow, 16-28 November 1961

So: Problemy kibernetiki, Issue 5, 1961, pp 289-294

USSR/Diseases Of Plants. General Problems. O-1

Abs Jour : Ref Zhur-Biol., No 2, 1958, 6422

Author : Cherenisinov N. A.
Inst : Not given
Title : Formation of Microflora

Orig Pub : Botan. zh., 1956, 41, No 9, 1293-1308

Abstract : Changes in the composition are caused either by the drifting in of new species of fungi not found in the given area, or by the distribution of plants into new cultivated areas where the microflora which was formed under different conditions undergoes considerable modifications as a result of change of the external medium. An important factor which affects the microflora of a given plant is the adaptation of the fungi to the nutritive substratum , a trait inherent

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Abs Jour : Ref Zhur-Biol., No 2, 1958, 6422

Abstract : not only to parasitic fungi but to saprophytes as well. As a result of the prolonged development of the fungi and the changes in their species specificity in accordance with the new conditions of the medium of the plant, the regular formation of the microflora and micocenosis takes place in wild as well as cultivated plants. Three phases the basic indices of which are common to all plants are observed in the process of microflora formation. Kok-sagyz, a newly cultivated plant is cited as an example. The principle indices of the first phase are the small number of fungi, the absence of adaptation to the given plant, a low parasitic activity, and an inconsiderable effect on the growth and development of Kok-sagyz. The second phase is charactarised by an inconsistant composition of fungi organisms,

USSR/Diseases of Plants. General Problems O-1

Abs Jour : Ref Zhur-Biol., No 2, 1958, 6422

Abstract : their incidental and insignificant adaptation to Kok-sagyz, a rise in their parasitic activity, penetration of the fungi into the internal organs of the plants, and finally the infection of the plant not only by spores from outside but also by spores formed on different organs of Kok-sagys. The characterestics of the third phase are the large number of the fungi, the constancy of the composition and the acaptation of the fungi to Kok-sagyz, and the establishment of inter-relations between different species of fungi in the forms of interlinking and antaganism. The regulation of the process of microflora formation maybe accomplished by means of the direct action of fungicides on the fungi organisms; by utilizing agrotechnical methods of the growth of the plant.

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CHERENIYENKO, N.

VINOKUR, M., inzhener tekhinspektsii (Kiyev); CHERENIYENKO, N.; SELYUMINOV, A., tekhnik radiouzla (Shumyachskiy rayon, Smolenskoy oblasti).

Let us complete the introduction of radio facilities in villages. Radio no.8:4-5 Ag.'54. (MLRA 7:8)

1. Zamestitel' nachal'nika MRTS (for Chereniyenko)
(Radio)

L 63108-65 EWT(1)/EPF(c) IJP(c) WW/GG

ACCESSION NR: AR5019164 UR/0272/65/000/007/0160/0160

389:535.891.089.6

22
B

SOURCE: Ref. zh. Metrologiya i izmeritel'naya tekhnika. Otdel'nyy vypusk, Abs. 7.32.1128

AUTHOR: Pertsev, A. N.; Pisarevskiy, A. N.; Reznikov, I. V.; Cherenkevich, S. N.

TITLE: A simple method of calibrating a "reduced" light source in the ultraviolet area of the spectrum

21

CITED SOURCE: Zh. prikl. spektroskopii, v. 1, no. 1, 1964, 83-85

TOPIC TAGS: ultraviolet spectroscopy, radiation energy distribution, measurement procedure, photomultiplier

TRANSLATION: The article describes methodology for measuring the distribution of radiation energy from a spectrum of a standard source in UV spectroscopy, using as the radiation pickup an FEU-1S unit characterized by a Poisson distribution of noise pulses. A scintillator from a mixture of polystyrene-terphenyl-ROROR, in optical contact with the photomultiplier (FEU) window, was used as a radiation converter with a constant quantum light yield. Signals at the photomultiplier output were amplified, then subjected to amplitude discrimination and counted. Formulas

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are given for defining the distribution of energy at monochromator output from the measured signal and noise pulse count rate. Accuracy of relative measurements utilizing the methodology described was 1%, that of absolute measurements about 5%.

SUB CODE: OP ENCL: 00

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L 02420-67 EWT(l)/EWT(m)/EWP(j) IJP(c) RM

ACC NR: AP6030725 SOURCE CODE: UR/0368/66/005/002/0265/0266

AUTHOR: Reznikov, I. V.; Monastyrnaya, P. L.; Cherenkevich, S. N.

58
B

ORG: none

TITLE: Spectral characteristic of the luminescence quantum yield of some radiation converters

SOURCE: Zhurnal prikladnoy spektroskopii, v. 5, no. 2, 1966, 265-266

TOPIC TAGS: quantum yield, luminescence, luminescent material, UV radiation, spectrum, excitation spectrum

ABSTRACT: This study was made because the quantum yield for some compounds was never specially investigated and for others it was determined only in a small part of the ultraviolet region of the spectrum. Consequently, the spectral characteristic of the luminescence quantum yield was studied for 2,5-diphenyloxazole, 1,3,5-triphenyl-oxazoline, 1,4-di-[2-(5-phenyloxazoline)]-benzene, and p-terphenyl in the range of 220-340 nm. The samples were dry and in the form of powder. The luminescence quantum yield of the samples was determined by comparison with that of salicyclic acid sodium, a compound with a constant quantum yield. The measurement results show that none of the compounds under investigation have a constant luminescence quantum yield in the

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entire test region of the excitation spectrum, that the quantum yield of 2,5-diphenyloxazole as compared with that of the other compounds has the highest absolute value, and that p-terphenyl has the broadest band with constant quantum yield. Orig. art. has: 1 figure.

SUB CODE: 20,07/ SUBM DATE: 29Jul65/ ORIG REF: 005/ OTH REF: 001

hs

Card 2/2

ACC NR: AP7003154 SOURCE CODE: UR/0368/66/005/006/0789/0792

AUTHOR: Pisarevskiy, A. N.; Reznikov, I. V.; Cherenkevich, S. N.

ORG: none

TITLE: Effect of gamma irradiation on energy transfer in the toluene-2,5 diphenyl oxazole system

SOURCE: Zhurnal prikladnoy spektroskopii, v. 5, no. 6, 1966, 789-792

TOPIC TAGS: gamma irradiation, excitation energy, energy transfer, diphenyl oxazole, toluene

ABSTRACT: The effect of gamma irradiation (in variuos doses) on energy transfer during photoexcitation has been investigated for various concentration solutions of diphenyl oxazole in toluene. It is shown that the energy transfer properties of toluene remain unchanged up to irradiation doses of the order of 10^7r. Investigation of the irradiation effect of individual components of the system points to the important role of interaction products of diphenyl oxazole with

Card 1/2 UDC: 539.104:539.12.04

ACC NR: AP7003154

toluene which appear as an external quenching in the process of energy transfer. Orig. art. has: 4 figures and 1 formula. [Authors' abstract] [NT]

SUB CODE: 20/SUBM DATE: 28Sep65/ORIG REF: 003/OTH REF: 001/

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CHERENKEVICH, V.A.

IVANOV, V.N., prof.; IL'IN, A.I., inzh; USTINOV, N.P.; dots; CHERENKEVICH, V.A., inzh.

Investigating the efficiency of fuel system parts. Elek. i tepl. tiaga 2 no.2:12-15 F '58. (MIRA 11:4)
(Diesel locomotives--Testing)

117-58-6-14/36

AUTHOR: Cherenkevich, V.A., Engineer,

TITLE: The Conditioning of the Fuel Apparatus Parts of Diesel Engines (Vosstanovleniye detaley toplivnoy apparatury dizel'nykh dvigateley)

PERIODICAL: Mashinostroitel', 1958, Nr 6, pp 24-25 (USSR)

ABSTRACT: Chemical nickel-plating is a modern method for increasing the wear resistance and anti-corrosion protection of machine parts. In many plants e.g. the Vtoroy Moskovskiy chasovoy zavod (2nd Moscow Watch Plant), galvanic plating has been substituted for by chemical plating, which is simpler. The plating obtained by the new method is very uniform. Precision details of diesel engines are also plated by chemical methods. The Nauchno-issledovatel'skaya teplovoznaya laboratoriya MIITa (Scientific-Research Diesel Locomotive Laboratory MIIT) has tested the pump elements of the D-50 engine with plungers reconditioned by chemical plating. For plating, a solution was used containing 30 g/liter nickel chloride, 10 g/liter sodium hypophosphite, and 10 g/liter sodium acetate at a temperature of 92-94°C. The results are represented in figure 1.

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The Conditioning of the Fuel Apparatus Parts of Diesel Engines

After the plating, the plungers were thermally processed by tempering them for an hour at a temperature of 400-425°C to increase the hardness to 750-760 kg/mm^2. In figure 2 the operation properties of the plungers are given together with the period of operation and in comparison with other plungers. There are 2 figures.

AVAILABLE: Library of Congress

Card 2/2 **1. Nickel plating-Processes**

CHERNOVICH, V.A.

Investigating wear of fuel apparatus parts of diesel locomotives and selecting efficient methods to increase their life. Trudy MIIT no.110:78-99 '59. (MIRA 13:4)
(Diesel engines--Fuel systems)

CHERENKEVICH, V. A.,Cand Tech Sci (diss) -- "Investigation of the wear, and increasing the useful life, of parts of fuel equipment for locomotive Diesels". Moscow, 1960. 15 pp (Min Transportation USSR, Moscow Order of Lenin and Order of Labor Red Banner Inst of Railroad Transport Engineers im I. V. Stalin), 170 copies (KL, No 11, 1960, 135)

S/145/60/000/009/017/017
D221/D304

AUTHOR: Cherenkevich, V.A., Assistent

TITLE: The radial unbalance in precision pairs of diesel fuel pumps

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Mashinostroyeniye, no. 9, 1960, 163 - 170

TEXT: The diagram of fuel pressure in a plane passing through the axis and orifices of the sleeve is shown in Fig. 1. This indicates that the pressure at the metering edge exceeds the normal value. Due to this unbalance, the plunger is forced against the sleeve with a variable force, and thus produces detrimental deformations and increased wear. The development of the metering part of plunger from A-50 (D-50) is illustrated, and computation is given of vector of the equivalent force R_e. The author introduces

$$p_c = \frac{1}{s_\kappa}\left(\sum_{i=1}^{n} p_i s_i + s_\phi p\right) \quad [kg/cm^2] \qquad (14)$$

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The radial unbalance in precision ...

for the approximate value of pressure p_s, against the part of plunger surface, symmetrical to the area taken up by the slot. In the above, s_k is the area of orifice adjacent to the metering edge in cm^2; s_i are the areas due to dividing of plunger into n parts, symmetrical to the orifice; p_i is the pressure at the center of each area in kg/cm^2; s_m is the surface of the milled section, symmetrical to the orifice in cm^2; p is the pressure in space above the plunger, in kg/cm^2. The magnitude of p_i can be determined by the equation due to I.N. Ponomarev which expresses the relationship between pressure changes along the line of flow in rectangular ring clearance and the fluctuation in fluid viscosity due to pressure. The exact solution of functional relationships is difficult on account of simultaneous changes in flow and pressure. The author, therefore, proposes an approximate grapho-analytical method for assessing various parameters for different positions of the plunger. The accuracy of determining p_s, β_x and R_x depends on the number of arbitrary chosen areas (n and m). During the design

of precision fuel equipment it is necessary to try and obtain a maximum reduction of the equivalent force which can be achieved by rational selection of design form and dimensions. Indications are given on the method of calculating the practical unbalance. The results are in good agreement with experimental data obtained by hydro-electric models which consisted of a thin galvanized sheet rounded-off by a copper rail. The equipotential lines were found by a Wheatstone bridge. The wear of plunger is easily ascertained by the layer of nickel which remains in the worn spot, after restoring the cylindricity of the plated plunger with special laps. There are 7 figures and 2 Soviet-bloc references.

ASSOCIATION: Rostovskiy n-D institut inzhenerov zheleznodorozhnogo transporta (Rostov-on-Don Institute of Railway Transportation Engineers)

SUBMITTED: December 26, 1959

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S/145/60/000/010/007/014
D262/D304

AUTHOR: Cherenkevich, V.A., Assistent

TITLE: Theory of hydraulic tightness of precision plunger-and-barrel units for hydraulic sets

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Mashinostroyeniye, no. 10, 1960, 94 - 102

TEXT: The author deals with an improvement of the formula for fuel leakage through the clearances of the valve pair by taking into account the general and local elastic deformations of the pump element, eccentricity of the position of the plunger in the barrel during compression and dependence of viscosity on pressure. The author compares the numerical results obtained from the formulae deduced here with those obtained from Gurevich's (Ref. 1: Avtomobil'naya i traktornaya promyshlennost', no. 7, 1957) and Ponomarev's formulas (Ref. 3: Issledovaniye utechnek tupliva v plunzhernykh parakh i raboty toplivopodayushchey sistemy teplovoznogo dvigatelya (Investigation of Fuel Leakage in Valve Pairs and the Operation of

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Theory of hydraulic tightness of ... S/145/60/000/010/007/014
D262/D304

the Fuel Supply System of a Diesel Locomotive Motor) Tomsk, 1957). The error of the author's formula is 6 % and that of other formulae exceeds 150 %. There are 3 figures, 1 table and 6 Soviet-bloc references.

ASSOCIATION: Rostovskiy institut inzhenerov zheleznodorozhnogo transporta (Rostov Institute of Railroad Engineering)

SUBMITTED: December 26, 1959

1

Card 2/2

CHERENKEVICH, V.A., assistent

Reconditioning of heating apparatus components by a chemical nickel plating method. Elek. i tepl. tiaga 4 no.10:9-12 O '60.
(MIRA 13:10)

1. Rostovskiy institut inzhenerov zheleznodorozhnogo transporta.
(Nickel plating)

CHERENKEVICH, V.A., kand.tekhn.nauk

"Contact state and local wear of the piston pair of a diesel locomotive engine." [Sbor.trud.] RIIZHT no.32:258 '61.
(MIRA 16:12)

YEVDOKIMOV, Yu.A., kand.tekhn.nauk; CHERENKEVICH, V.A., kand.tekhn.nauk

Effect of the machining finish of a shaft on the wear of steel-secondary capron friction pair. Vest.mashinostr. 42 no.5:56-57 My '62. (MIRA 15:5)
(Mechanical wear)

YEVDOKIMOV, Yu.A., kand.tekhn.nauk, dotsent; KOTENKO, A.F., kand.tekhn.nauk, dotsent; CHERENKEVICH, V.A., kand.tekhn.nauk

Mechanical and antifriction characteristics of secondary capron. Izv.vys.ucheb.zav.; mashinostr. no.8:79-88 '62. (MIRA 15:12)

1. Rostovskiy institut inzhenerov zheleznodorozhnogo transporta.
(Nylon—Testing)

CHERENKEVICH, V.A., kand.tekhn.nauk

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CHERENKEVICH, V.A., kand.tekhn.nauk

Determining the wear of cylindrical precision parts. Izv.vys.ucheb. zav.; mashinostr. no.7:62-66 '64. (MIRA 17:10)

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AUTHOR: Cherenkevich, V. A.

TITLE: Rebuilding of cylindrical parts by chemical nickel plating without mechanical working

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REF SOURCE: Nauchn. tr. Omskiy in-t inzh. zh.-d. transp., no. 58, 1965, 54-60

TOPIC TAGS: nickel plating, metal deposition, electrolytic deposition, cost estimate

ABSTRACT: The author reports a method of rebuilding cylindrical parts by chemical nickel plating without mechanical working. The worn part (for example an unevenly worn roller) is placed in a template-cartridge, which is immersed into the electrolyte for chemical nickel plating. If the wear is uneven, an uneven annular gap is produced between the part and the template-cartridge. By slowly rotating the template-cartridge, which is made of an inert material and has a narrow longitudinal through slot, the solution is successively replenished (through this slot) and the initial rate of deposition of the nickel is periodically restored; this rate decreases periodically at a speed that is larger the smaller the gap in the given section. At definite values of the gap size and of the rotation speed of the template-cartridge, a direct proportionality is established between the average rate of deposition of the nickel on the surface of the roller and the size of the annular gap, as a result of which the cylindrical surface of the unevenly worn roller is evenly restored to a uniform dimen-

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sion, which is determined by the inside diameter of the template-cartridge. The degree of economic efficiency of this method depends on the dimensions of the renewed parts and the extent of the wear. Technical and economical calculations made for a batch of cylindrical parts (sic pieces 50 mm in diameter and 500 mm long, at a maximum wear of 0.4 mm in diameter) show that the use of this method for the renewal of these parts doubles the productivity and reduces the consumption of the chemical by a factor of 4 - 5. [Translation of abstract]

SUB CODE: 13, 07

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Name: CHEREN'KO, M. P.

Dissertation: On the functional state of the central nervous system in patients with hyperthyroid and euthyroid forms of goiter

Degree: Cand Med Sci

Defended at: Kiev Order of Labor Red Banner Medical Inst imeni Academician A. A. Bogomolets, Chair of Surgery, Stomatological Faculty

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